New data on the family Moridae (Gadiformes) from the Canary Islands (northeastern Atlantic Ocean), with first record of *Laemonema robustum*

by

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ABSTRACT. - An account of the species of the family Moridae from the Canary Islands is given. *Laemonema robustum* Johnson, 1862 is recorded for the first time from the Canaries, which brings to eight the number of morids recorded for the area. The presence of *Antimora rostrata* (Günther, 1878) and *Gadella svetovidovi* Trunov, 1992 is confirmed for the Canaries. Available, data on distribution, habitat, morphometry and reproduction are presented. The species composition and vertical distribution pattern are similar to those found in Madeira and the Azores. The higher species richness observed from Canaries than those of the adjacent Moroccan slope and the Cape Verdes may probably reflect the lack of knowledge on the deep-sea fish fauna of both African areas.

RÉSUMÉ. - Nouvelles données sur la famille des Moridae (Gadiformes) des îles Canaries (océan Atlantique nord-oriental) et premier signalement de *Laemonema robustum*.

Une liste des espèces de la famille Moridae présentes aux îles Canaries est fournie. *Laemonema robustum* Johnson, 1862 est signalé pour la première fois aux Canaries, portant à huit le nombre de moridés signalés dans la zone. La présence d'*Antimora rostrata* (Günther, 1878) et de *Gadella svetovidovi* Trunov, 1992 est confirmée pour cet archipel. Les données disponibles sur la distribution, l'habitat, la morphométrie et la reproduction sont présentées. La composition et la répartition bathymétrique des espèces canariennes sont semblables à celles qui ont été trouvées à Madère et aux Açores. La richesse en espèces observée aux îles Canaries est supérieure à celles du talus marocain voisin et des îles du Cap Vert. Ceci reflète probablement le manque d'informations sur les poissons de grandes profondeurs dans ces zones africaines.

Key words. - Moridae - *Laemonema robustum* - Canary Islands - Eastern Atlantic - Distribution - New record.

Morids are benthopelagic to pelagic, deep-water gadiform fishes ranging from shallow coastal areas to deep waters beyond 2500 m of depth. Morid cods, also called moras, are represented by 18 genera and at least 111 species distributed around the world (Froese and Pauly, 2007). Of these, 12 genera and 37 species are found in the Eastern Atlantic Ocean and the Mediterranean Sea (Cohen *et al*., 1990; Froese and Pauly, 2007).

Until the present paper, only seven species of morids have been recorded from the Canary Islands (Brito, 1991; Brito *et al*., 2002) and only their habitat and bathymetric distribution have been given, therefore they remain poorly known in terms of morphological and biological aspects.

Following a series of deepwater surveys off the Canary Islands, an account of the species of the family Moridae from this area is given and new data on them were gathered.

MATERIAL AND METHODS

A series of surveys of the epi- and benthic fauna off the Canary Islands (Fig. 1) were carried from1985 to 2007 in the depth range 200 - 2,500 m (Tab. I). Most of the specimens studied were caught during experimental cruises on board research vessels, and from fishing vessels. Additional material was obtained from the local small-scale fisheries.

The following fishing gears were used: bottom drop lines (BDL) and bottom longlines (BLL) (González *et al*., 1988), semifloating shrimp traps (SFST, operated around 3 m above the seafloor) (González *et al*., 1992), and bottom traps (BT) (González *et al*., 1988; Biscoito, 1993). In average, all traps were deployed for 15-25 hours and all lines for 3-8 hours. Baits used were salted or fresh mackerel, sardine or horse mackerel in BDL, BLL and BT. Silver scabbardfish or frozen chicken thighs were used in SFST.

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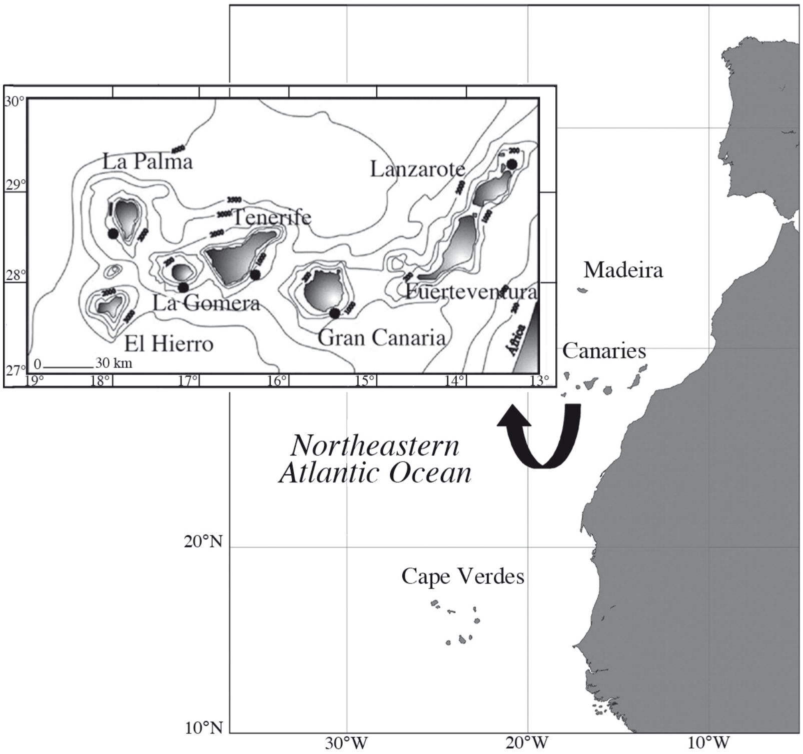

Figure 1. - Location of capture of the specimens studied (●). *[Localisation des lieux de capture des spécimens étudiés (●).]*

Voucher specimens were deposited in the collections of the Museo de Ciencias Naturales de Tenerife (TFMC) and Museu Municipal do Funchal (História Natural) (MMF). Additional unpreserved material sampled was included in the present study, whenever relevant for depth range or biological information.

All measurements are in millimetres and follow Hubbs and Lagler (1958) and Maul (1976). Other abbreviations are as follows: HL - head length, TL - total length, SL - standard length.

RESULTS

Antimora rostrata (Günther, 1878)

Material examined. - 1 specimen, 510 mm TL, 452 mm SL, south of Tenerife, 27º55'N, 16º26'W, 2450 m, cruise Taliarte 9301, sta. 53, 05 Feb. 1993, BDL (Brito *et al*., 1998: 73; Brito *et al*., 2002: 152, photo 142). Specimen lost.

Additional material. - 1 maturing male, 660 mm TL, 626 mm SL, south of La Gomera, 27º57'N, 17º11'W, 1711 m, cruise Palcan 2003, sta. 27, 04 Jul. 2003, BLL.

Remarks. - A deep-water species ranging from 350 to 3000 m depth (Small, 1981). Widely distributed in all oceans except the North Pacific north of 10°N. In the Eastern Atlantic: from south coast of Iceland and west of British Isles (Magnússon, 2001) to South Africa (Cohen *et al*., 1990). Also reported from the Walvis Ridge and near the Discovery and Meteor seamounts (Cohen *et al*., 1990; Trunov, 1992). It was first recorded from the Canary Islands by Brito *et al*. (1998) based just on the specimen examined. A second specimen was caught off La Gomera at 1711 m and later accidentally lost. Apparently this species is very rare in the study area.

Gadella maraldi (Risso, 1810)

Material examined. - 3 specimens. TFMCBM-VP/0103, 145 mm TL, 134 mm SL, Mogán, Gran Canaria, 270 m, cruise Mogán 8802, 10 Feb. 1988, BT; TFMCBM-VP/0508, 202 mm TL, 184 mm SL and TFMCBM-VP/0509, 198 mm TL, 175 mm SL, La Palma, 28º39'N, 17º45'W, 264 m, cruise Camarón 9911, sta. 23, 04 Dec. 1999, SFST.

Additional material. - 19 specimens, 164-250 mm TL, cruise Camarón 9701, 184-334 m, SFST; 46 specimens, 80-260 mm TL, cruise Camarón 9801, 199-331 m, SFST; 22 specimens, 135-220 mm TL, cruise Camarón 9911 (La Gomera), 227-325 m, SFST; 30 specimens, 108-212 mm TL, cruise Camarón 9911 (La Palma), 124-324 m, SFST.

Remarks. - An outer-shelf to mid-slope species ranging from 150 to at least 700 m depth (Cohen *et al*., 1990). Distributed along the Eastern Atlantic: from off Portugal to the west coast of Africa (its southern distribution is not clear), including the Azores, Madeira, the Great Meteor Bank, and the Canary Islands. The species is also known in the Mediterranean (Cohen *et al*., 1990; Santos *et al*., 1997; Uiblein *et al*., 1999; Brito *et al*., 2002). According to Brito *et al*. (2002:

Table I. - Cruise and collection data for the studied specimens. BT : bottom traps; BLL : bottom longlines; BDL bottom droplines; SFST : semipelagic shrimp traps. *[Données sur les campagnes et les collectes des spécimens étudiés. BT : casiers de fond, BT : palangres de fond ; BDL : palangres de fond à main ; SFST : casiers à crevettes semipélagiques.]*

Project / Cruise	Vessel	Island	Date	Collecting gear	Depth range (m)
Canarias 85	R/V Taliarte	Lanzarote	03 Jun. to 26 Jul. 1985	BT & BLL	135-944
Mogán 8802	F/V Juan Ramón	Gran Canaria	08 to 12 Feb. 1988	BT	118-313
Taliarte 9301	R/V Taliarte	Gran Canaria	21 to 30 Jan. 1993	BT & BDL	140-1830
Taliarte 9301	R/V Taliarte	Tenerife	02 to 05 Feb. 1993	BT, BDL & BLL	148-2500
Camarón 9701	F/V González López	Gran Canaria	15 Jan. to 23 Feb. 1997	SFST	192-430
Camarón 9801	F/V González López	Tenerife	17 Jan. to 06 Mar. 1998	SFST	183-484
Camarón 9911	F/V González López	La Gomera	09 to 25 Nov. 1999	SFST	209-400
Camarón 9911	F/V González López	La Palma	26 Nov. to 10 Dec. 1999	SFST	182-360
PesCanarias	Artisanal F/V	Gran Canaria	23 Nov. 2000	BDL	600-700
Palcan 2003	F/V Costa Beivide I	La Gomera	27 Jun. to 07 Jul. 2003	BLL	875-1966
Recprofcan-1	F/V Mary Nere	Gran Canaria	18 to 25 Nov. 2003	BT	817-2539
Recprofcan-2	F/V Mary Nere	Gran Canaria	08 to 13 Feb. 2004	BT	952-2565
Recprofcan-3	F/V Mary Nere	Gran Canaria	03 to 11 Jun. 2004	BT & BLL	778-2334
Recprofcan-4	F/V Mary Nere	Gran Canaria	20 to 23 Oct. 2004	BT & BLL	895-2352
Pandcan-4	F/V Juan Carlos I	Gran Canaria	26 to 31 Oct. 2004	BT & SFST	120-1178
PescaBase	Artisanal F/V	Gran Canaria	15 Oct. 2004	BDL	600-800
Chacan-1	F/V Mary Nere	Gran Canaria	22 Feb. to 03 Mar. 2005	BT	667-1048
Chacan-2	F/V Juan Carlos I	Gran Canaria	05 to 19 Jul. 2005	BT	591-1014
Chacan-3	F/V Mary Nere	Gran Canaria	04 to 11 Nov. 2005	BT	668-1023
Cangamba-1	R/V Pixape II	Gran Canaria	14 to 20 Mar. 2006	BT & SFST	152-824
Redeca-2	R/V Pixape II	Gran Canaria	01 to 08 Jun. 2006	BT & SFST	206-807
Redeca-5	R/V Pixape II	Tenerife	13 to 19 Mar. 2007	BT & SFST	223-909

152, photo 143), it is a frequent species on the outer-shelf and upper-slopes of the Canaries at 150-500 m depth. The material studied was caught between 199 and 325 m.

Gadella svetovidovi Trunov, 1992

Material examined. - 4 specimens. TFMCBM-VP/01424, 180 mm TL, 164 mm SL, 27°39'N, 15°44'W, 670 m, sta. 1NB7 and TFMCBM-VP/01425, 254 mm TL, 237 mm SL, 27°40'N, 15°44'W, 500 m, sta. 2NB7, Arguineguín, Gran Canaria, cruise Pandcan-4, 29 Oct. 2004, BT; MMF36503, 214 mm TL, 195 mm SL and MMF36504, 216 mm TL, 196 mm SL, 27°39'N, 15°44'W, 741 m, Arguineguín, Gran Canaria, cruise Chacan-3, sta. 2NC3, 10 Nov. 2005, BT.

Additional material. - 1 maturing female, 229 mm TL, 219 mm SL, Arguineguín, Gran Canaria, 550 m, Pandcan-4, sta. 1NB4, 28 Oct. 2004, BT; 2 specimens (including 1 mature female), 280-281 mm TL, 255-258 mm SL, Arguineguín, Gran Canaria, 737-860 m, cruise Chacan-3, BT; 4 specimens, 180-266 mm TL, 167-244 mm SL, Taliarte, Gran Canaria, 630-791 m, cruise Cangamba-1, BT; 1 specimen, 154 mm TL, 144 mm SL, Taliarte, Gran Canaria, 280 m, cruise Redeca-2, sta. 4TNCF, 02 Jun. 2006, SFST; 1 specimen, 292 mm TL, 267 mm SL, Taliarte, Gran Canaria, 709 m, cruise Redeca-2, sta. 6NB7, 03 Jun. 2006, BT; 2 specimens (including a spent female), 208-275 mm TL, 192-245 mm SL, San Andrés, Tenerife, 675-850 m, cruise Redeca-5, SFST.

Remarks. - A deep-water species ranging from 230 to 900 m depth (Trunov, 1992; Brito *et al*., 2002). Only known from scattered localities in the Northeast (Western Sahara and the Canary Islands) and Southeast Atlantic (Walvis Ridge, its type locality) (Trunov, 1992; Sazonov, 1996; Brito *et al*., 2002). This uncommon species was first recorded from the Canary Islands by Brito *et al*. (2002: 152, photo 144), based on two specimens from Tenerife collected at 750 and 900 m depth and on one specimen from the Canaries-Western Sahara channel (27°30'N, 13°20'W) caught at 700-1000 m depth (Sazonov, 1996). The present material was collected at 280-860 m depth and reproductive activity was observed in females in late October and November, with spent females in early-March.

Laemonema robustum Johnson, 1862 (Fig. 2)

Material examined. - 4 specimens. TFMCBM-VP/01444, 374 mm TL, 347 mm SL, sta. 3NC6 and TFMCBM-VP/01445, 407 mm TL, 371 mm SL, sta. 3NB2, 27º39'N, 15º45'W, 715-814 m, cruise Chacan-1, 25 Feb. 2005, BT; MMF38523, 355 mm TL, 324 mm SL, 707 m, sta. 1NB11 and MMF38524, 307 mm TL, 280 mm SL, 713 m, sta. 1NB7, Arguineguín, Gran Canaria, cruise Chacan-1, 01 Mar. 2005, BT.

Additional material. - 1 specimen, 380 mm TL, 346 mm SL, 27º39'N, 15º45'W, 713 m, sta. 2NB1, Arguineguín, Gran Canaria, Chacan-1, 01 Mar. 2005, BT; 15 specimens (including 3 mature females), 238-408 mm TL, 217-374 mm SL, Arguineguín, Gran Canaria, 615-850 m, cruise Chacan-2, BT; 5 specimens, 337-428 mm TL, 304-396 mm SL, Arguineguín, Gran Canaria, 741-871 m, cruise Chacan-3, BT.

Remarks. - A deep-water species ranging from 336 to 1200 m depth and widely distributed around oceanic islands and trenches in the Atlantic and Pacific oceans (Meléndez and Markle, 1997). In the eastern Atlantic it is known from Madeira (type locality), off Agadir, Morocco and Cape Verde Islands (Vaillant, 1888) and St. Helena (Edwards, 1990). This is the first record for this apparently uncommon species from the Canary Islands. The present material was caught between 615 and 871 m and reproductive activity in females was observed in July.

Selected body proportions and meristics of the material studied (217-374 mm SL) are shown in table II and compared with data from the literature. The specimen TFMCBM-VP/01444 (374 mm SL, 408 mm TL, 698 g TW) is so far the largest ever caught. According to Maul (1952), *L. robustum* is dark brown with a slightly mauve hue on body, head and fins except the pelvics. The specimens observed match with this colour pattern.

***Laemonema yarrellii* (Lowe, 1838)**

Material examined. - 2 specimens. TFMCBM-VP/0510, 174 mm TL, 164 mm SL, Barranco del Agua, La Palma, 28º49'N, 17º45'W, 323 m, cruise Camarón 9911, sta. 25, 05 Dec. 1999, SFST; TFMCBM-VP/0511, 173 mm TL, 147 mm SL, La Palma, 28º38'N, 17º45'W, 231 m, Camarón 9911, sta. 21, 04 Dec. 1999, SFST.

Additional material. - 1 specimen, 149 mm TL, 135 mm SL, 30 mm HL, La Graciosa, Lanzarote, 29º16'N, 13º34'W, 292 m, rocky bottom, cruise Canarias 85, sta. 5-64, 12 Jun. 1985, BT (González *et al*., 1988; Lozano *et al*., 1992: 220-221, photo 3, as *Laemonema laureysi*); 1 specimen, 116 mm TL, Barranco del Agua, La Palma, 28º49'N, 17º45'W, 323 m, cruise Camarón 9911, sta. 25, 05 Dec. 1999, SFST.

Remarks. - A benthopelagic species living mainly in outer shelf and upper-slope of oceanic islands and seamounts in the subtropical Atlantic, ranging from 220 and 1640 m (Meléndez and Markle, 1997). In the Eastern Atlantic it is known from Western Sahara to Senegal (Ehrich, 1977) and off Angola (Meléndez and Markle, 1997). Also from Madeira (type locality), the Seine Seamount (Biscoito and Maul, 1989), the Great Meteor Bank (Maul, 1976; Ehrich, 1977; Biscoito and Maul, 1989; Uiblein *et al*., 1999) and the Canary Islands (Cohen *et al*., 1990; Brito *et al*., 2002). This is a rare species in the Canary Islands, from where it was first recorded by González *et al*. (1988), erroneously identified as *L. laureysi*. According to Brito *et al*. (2002: 152, photo 145), only four specimens were known from off the Canaries, caught between 292 and 450 m depth. The present material was collected between 231 and 323 m depth.

***Lepidion guentheri* (Giglioli, 1880)**

Material examined. - 1 specimen. TFMCBM-VP/01739, 429 mm TL, 391 mm SL, off Arguineguín, Gran Canaria, 27º40'N, 15º47'W, 1017 m, cruise Recprofcan-2, sta. 3, 09 Feb. 2004, BT.

Remarks. - A deep-water species ranging from 750 (Froese and Pauly, 2007) to 1017 m depth. Known in the Eastern Atlantic: Portugal, west coast of Spain, the Azores, Madeira and the Canary Islands (Templeman, 1970; Brito *et al*., 2002). This is a very rare species in the Canary Islands, where it was first recorded by Brito *et al*. (2002) based on one specimen from south of Tenerife, collected between 800

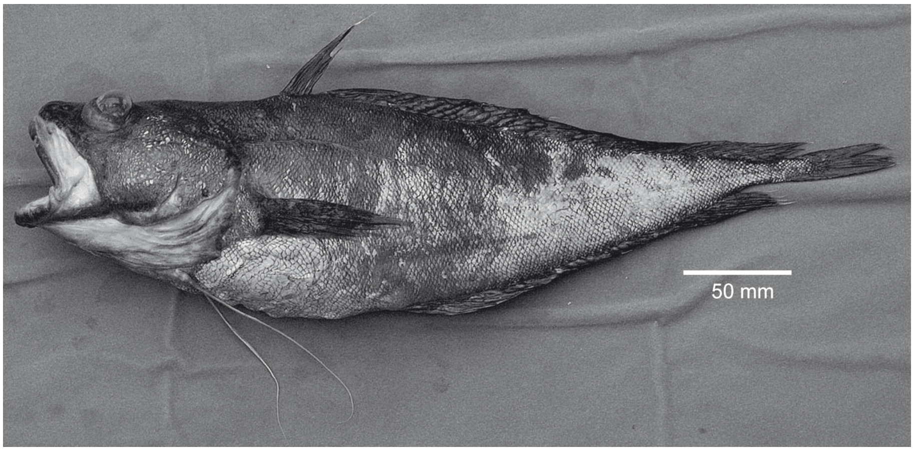

Figure 2. - *Laemonema robustum* from the Canary Islands (MMF38523, 355 mm TL, 324 mm SL, Arguineguín, Gran Canaria, 707 m).

Table II. - Selected body proportions and counts of *Laemonema robustum*. *[Sélection de données morphométriques et méristiques de* L. robustum.*]*

Body proportions and counts	20 specimens 217-374 mm SL (Present study)	5 specimens 274-319 mm SL (Biscoito and Maul, 1989)	12 specimens SL range not given (Meléndez and Markle, 1997)
Head length in %SL	24.0-29.7	25.9-28.7	24.9-29.9
Max. body depth in %SL	20.6-29.7	26.9-28.3	21.9-27.7
First dorsal-fin rays	5-6	6	5-6
Second dorsal-fin rays	48-59	51-54	50-57
Anal-fin rays	43-53	46-49	48-54
Pectoral-fin rays	26-27	26-30	26-30
Gill rakers on upper limb	4-5	5	4-6
Gill rakers on lower limb	13-15	13-14	13-16
Total gill rakers	18-22	18-19	17-22

and 900 m depth. The present specimen represents the second occurrence of this species for the area and was caught at 1017 m, establishing a new depth record.

Mora moro (Risso, 1810)

Material examined. - 4 specimens. TFMCBM-VP/1342, 500 mm TL, 447 mm SL, and TFMCBM-VP/1343, 505 mm TL, 449 mm SL, off Castillo del Romeral, Gran Canaria, 700 m, project PescaBase, 15 Oct. 2004, BDL; TFMCBM-VP/01428, 425 mm TL, 378 mm SL, and TFMCBM-VP/01429, 448 mm TL, 401 mm SL, off Arguineguín, Gran Canaria, 27º41'N, 15º48'W, 798 m, Recprocan-3, sta. 1, 03 Jun. 2004, BLL.

Additional material. - 1 immature male, 2 mature males, and 3 mature females, 460-650 mm TL, 433-573 mm SL, off Gran Canaria, 705-935 m, BT, BDL, and 3 mature females, 675-730 mm TL, 595-649 mm SL, off Tenerife, 643-793 m, BT, BLL, BDL, all from cruise Taliarte 9301; 1 ripe female, 730 mm TL, 653 mm SL, and 1 specimen, 510 mm TL, 465 mm SL, both from off Arguineguín, Gran Canaria, 650 m, project PesCanarias, 23 Nov. 2000, BDL; 3 specimens (including 1 mature female), 418-701 mm TL, 371-625 mm SL, off Gran Canaria, 907-967 m, cruise Recprofcan-1, BT; 1 immature female, 510 mm TL, 455 mm SL, off Arguineguín, Gran Canaria, 1106 m, cruise Recprofcan-2, sta. 1NB2, 09 Feb. 2004, BT; 1 immature male, 9 immature females, and 2 mature females, 425-650 mm TL, 378-587 mm SL, off Gran Canaria, 778-798 m, cruise Recprofcan-3, BT, BLL; 1 mature male, 1 immature female, and 14 mature females, 493-685 mm TL, 436-614 mm SL, off Gran Canaria, 895-1104 m, cruise Recprofcan-4, BT, BLL; 4 specimens, 370-516 mm TL, 330-460 mm SL, off Gran Canaria, 667-767 m, cruise Chacan-1, BT; 1 mature female, 1 immature female, and 3 immature males, 468-610 mm TL, 414-543 mm SL, off Gran Canaria, 615-902 m, cruise Chacan-2, BT; 1 ripe female, 625 mm TL, 552 mm SL, off Arguineguín, 860 m, cruise Chacan-3, sta. 2NB2, 06 Nov. 2005, BT; 1 female, 650 mm TL, 600 mm SL, off Taliarte, Gran Canaria, 750 m, cruise Cangamba-1, sta. 2NB1, 16 Mar. 2006, BT.

Remarks. - It is a deep-water species occurring mainly in the eastern Atlantic and Mediterranean Sea, but also present south of Madagascar in the western Indian Ocean and temperate Australia and New Zealand in the western Pacific and off Valparaiso, Chile in the eastern Pacific (Cohen *et al*., 1990), ranging from 50 (occasionally) and at least 1365 m depth (Fowler, 1936; Cohen *et al*., 1990). In the Eastern Atlantic, known from Iceland and Faeroes to Cape Bojador, Western Sahara and probably to Mauritania/Senegal, including the Azores, Madeira, the Canaries and Western Mediterranean (Cohen *et al*., 1990). Also known in the Southeast Atlantic from the Walvis and Vavilov ridges (Trunov, 1991). This is a common species in the Canary Islands, from where it was first recorded by Steindachner (1868). It occurs over muddy and rocky-muddy substrates between 340 and 1365 m depth, being more common between 600 and 800 m, where it spawns in November-December (Brito *et al*., 2002; González *et al*., 2004b). Uiblein *et al*. (1996, 1998) reported catch of *Mora moro* off Fuerteventura between 641 and 1043 m with higher abundance at 1000 m at the beginning of the spawning season (later October). The material examined includes mature females in June-February, and ripe females in mid October-November.

Physiculus dalwigki Kaup, 1858

Material examined. - 1 specimen. 225 mm TL, 215 mm SL, La Graciosa, Lanzarote, 29º16'N, 13º35'W, 396 m, rocky bottom, cruise Canarias 85, sta. 5-61, 12 Jun. 1985, BT (González *et al*., 1988; Lozano *et al*., 1992: 221-222, photo 4, as *Physiculus dalwigkii*). Specimen lost.

Additional material. - 1 specimen, 242 mm TL, Gran Canaria, 27º39'N, 15º43'W, 595 m, cruise Taliarte 9301, sta. 11, 25 Jan. 1993, BT; 1 specimen, 275 mm TL, Gran Canaria, 27º41'N, 15º47'W, 648 m, Taliarte 9301, sta. 21, 29 Jan. 1993, BT.

Remarks. - An outer-shelf to upper-slope species ranging from about 100 m (Cohen *et al*., 1990) to 742 m depth (Merrett and Domanski, 1985). Known from the western Mediterranean and Eastern Atlantic (Morocco and the Western Sahara) to about 25°N, including the Azores, Madeira, Great Meteor Bank, the Canary and Cape Verde Islands (Merrett and Domanski, 1985; Cohen *et al*., 1990; Santos *et al*., 1997; Uiblein *et al*., 1999; Brito *et al*., 2002; Menezes *et al*., 2004). This is an occasional species in the Canary Islands (Brito *et al*., 2002), from where it was first recorded by González *et al*. (1988) as *P. dalwigkii*. According to Brito *et al*. (2002: 153, photo 147), it has been collected off the Canaries between 260 and 600 m depth. The material studied was caught at 396 and 648 m depth.

DISCUSSION

Six genera and eight species of the family Moridae occur off the Canaries, representing 50% and 22% respectively of the known genera and species of morid cods in the Eastern Atlantic Ocean and the Mediterranean Sea.

Although the morids *Lepidion eques* (Günther, 1887) and *Halargyreus johnsonii* Günther, 1862 were not caught around the Canary Islands, they may occur as they are abundant further north (Gordon and Duncan, 1985a, 1985b; Trenkel *et al*., 2004) and have wide geographical distribution. They may simply not bite on longlines and not enter traps, both gears being highly selective for species and sizes. Further sampling with smaller hooks and other sampling methods (e.g., video surveys) would allow for firm conclusions.

All known Canarian morids are deep-water species, distributed along the islands' slopes, from 150 m down to 2450 m. The upper-slopes seem to be inhabited mainly by *P. dalwigki* (260-648 m), *L. yarrellii* (231-450 m) and *G. maraldi* (150-500 m). There follows *G. svetovidovi* (280-860 m), *L. robustum* (615-871 m) and *L. guentheri* (800-1017 m). On the deeper part of the slopes, *M. moro* (340-1365 m) and *A. rostrata* (1711-2450 m) seem to be the more common morids. The present record of *L. guentheri* represents the deepest ever recorded. The differences in bathymetric distribution among the Canarian species have been shown in table III.

This vertical distribution pattern is similar to those found in the waters of the other two northern Macaronesian archipelagos, with which the Canaries share the majority of the species. Exceptions are *G. svetovidovi* and *A. rostrata*, not yet recorded from Madeira and the Azores, *Halargyreus johnsonii* Günther, 1862 only present in Madeira (Maul, 1952) and *Lepidion eques* (Günther, 1887) only present in the Azores (Santos *et al*., 1997).

When compared with the adjacent waters to the East and South, the Canary Islands morid fauna seems to be richer. Only two morid species have been recorded from the Moroccan slope (27º-34ºN): *M. moro* and *P. dalwigki* (Merrett and Domanski, 1985) and four species from the Cape Verdes: *Gadella imberbis* (Vaillant, 1888) (type locality), *Laemonema laureysi* Poll, 1953, *L. robustum* and *P. dalwigki* (Reiner, 1996; González *et al*., 2004a; Menezes *et al*., 2004), against eight in the Canaries. However, this paucity may reflect the lack of knowledge on the deep-sea fish fauna of both African areas.

Amongst the morids found in the Canary Islands, two have a potential for commercial exploitation. In fact *M. moro* was in the past a target species in the local small-scale fisher-

Table III. - Number of specimens collected at different bathymetric strata. *[Nombre de spécimens collectés dans les différentes strates bathymétriques.]*

Depth range (m)	*Gadella maraldi*	*Laemonema yarrellii*	*Physiculus dalwigki*	*Gadella svetovidovi*	*Laemonema robustum*	*Mora moro*	*Lepidion guentheri*	*Antimora rostrata*
Literature	150-700	220-1640	100-742	230-900	336-1200	50-1365	750-1017	350-3000
Present study	-	-	-	-	-	-	-	-
100-200	13	-	-	-	-	-	-	-
200-400	107	4	1	1	-	-	-	-
400-600	-	-	1	2	-	-	-	-
600-800	-	-	1	10	15	30	-	-
800-1000	-	-	-	2	10	12	-	-
1000-1200	-	-	-	-	-	16	1	-
…								
1600-1800	-	-	-	-	-	-	-	1
…								-
2400-2600	-	-	-	-	-	-	-	1

ies with line-and-hook, as it is a well appreciated fish with excellent flesh and attaining a maximum size of 73 cm TL (4.75 kg) (common to 37 cm TL, 0.5 kg) (González *et al*., 2004b). *L. robustum*, due to its relative abundance, size (up to 0.7 kg) and flesh quality, will eventually be a species of some commercial interest and is caught, as a by-catch, in the recently started small-scale trap fishery for the deep-sea red crab *Chaceon affinis* (Milne-Edwards and Bouvier, 1894) off the island of Gran Canaria.

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